REMARKS

Reconsideration of this application is respectfully requested.

In view of Applicants' election to prosecute the Group II invention, i.e., apparatus Claims 31 through 63, method Claims 1 through 30 have been canceled and the Title and Abstract pages of the specification have been amended accordingly.

The rejection of Claims 31 through 63 as being anticipated by Johnson et al. (WO 01/18604), under 35 U.S.C. 102(b), is respectfully traversed. Claims 31 defines an apparatus for forming a relief pattern from a photosensitive element containing a composition layer having an exterior surface and capable of being partially liquefied. The apparatus comprises means for heating the exterior surface of the composition layer to a temperature Tr sufficient to cause a portion of the layer to liquefy and cause one or more components in the layer to form a vapor, and means for controlling the vapor at or adjacent the heating means. Collecting the vapor at or adjacent the heating means is necessary due to the presence of condensable components in the vapor and/or condensed droplets in the air of the apparatus. The present invention primarily collects the vapor (and any condensed droplets) before the vapor has a chance to contaminate surfaces inside the apparatus, and optionally transports the vapor (and any condensed droplets) to an exhaust system that is designed to manage the vapor, exhaust air, and any condensed components.

The present apparatus includes means for collecting the vapor *at or adjacent the means for heating* as described in the specification on page 8, line 33 through page 11, line 14. As shown in Figure 1, one embodiment of a means for collecting the vapor encompasses at least one collection member 55, which is positioned *at the heating station* 50 to collect the vapor as the vapor emits from the composition layer of the photosensitive element 16. Since vapor is most likely to form when the composition layer is reaching or reaches the temperature to liquefy, the at least one collection member 55 is placed at or adjacent to a nip 60 where the photosensitive element 16 contacts an absorbent web 35. The means for collecting the vapor optionally includes a shroud 56 that isolates or substantially isolates the air with the vapor at the heating station 50 from the remainder of the interior environment of the apparatus 10. The shroud 56 helps to keep the vapor in the heating station 50 region so that the at least one collection member 55 can collect the vapor. The means for collecting the vapor optionally also includes a supply of air 57 (i.e., air curtain) which serves to contain and direct the vapor toward the at least one collection member 55.

Johnson et al. describe a method and apparatus for thermal processing a photosensitive element. The thermal development apparatus 10a is ventilated by a vacuum fan unit 368 which controls fumes resulting from heating the composition

layer. The exhaust from the vacuum fan unit 368 is vented through a conduit 370. Along a bottom of a plenum associated with the vacuum fan unit 368 is a plurality of inlets 369. The inlets 369 are located above a development nip 305 where the photosensitive element is heated and contacted with an absorbent material. Air may be introduced into the apparatus with a means for cooling the photosensitive element, e.g., a blower, in proximity to the development nip 305. The vacuum fan unit 368 pulls air circulating through the apparatus 10a to the exhaust conduit 370.

The method of collecting the air to an exhaust port in the apparatus as described by Johnson et al. is ineffective and unsatisfactory in managing the presence of components that can condense in the vapor and/or have condensed to form droplets in the vapor before reaching the exhaust port. As described in the background of the present specification, the presence of condensable vapor and already condensed droplets presents problems in the cleanliness and operation of the apparatus and can damage the photosensitive elements that are being thermally treated. First, liquid droplets flowing with the exhaust air can collide and deposit a liquid film on parts of the apparatus. Additionally, any part of the apparatus in the flow of air to the exhaust can provide a surface for condensation of the vapor and an accumulation of the liquid condensate, particularly if the part is cooler than the dew point of the vapor mixture. Thirdly, the rate of condensation of the condensable components in the vapor is time and temperature dependent so that collection at a location far from the heating station offers more time for cooling and condensate formation and subsequent deposition inside the processor.

The creating of airflow to an exhaust collection as disclosed by Johnson et al. does not anticipate or render obvious the present invention which includes *means for collecting the vapor at or adjacent the means for heating*, as recited in Claim 31. Johnson et al. do not teach or suggest means for collecting the vapor *at or adjacent the means for heating*, that is, at the heating station. The apparatus of Johnson et al. exhausts air after circulating within the entire apparatus at the exhaust conduit 370 which is disposed at a location remote from the heating station where the vapor is generated. The circulating air may include some vapor that exhausts from the apparatus. However, the vapor that escapes into the apparatus environment often cools and condenses onto various surfaces in the apparatus, and thus, not all the vapor that is generated, is "collected" by the exhaust system. Even if one was to consider the inlets 369 into the plenum for the vacuum fan unit 368 as collecting the vapor in the apparatus by Johnson et al., the location of the inlets 369 are still removed enough from the heating station that vapor escapes from the heating station region into other environs of the apparatus, and provides no or only minimal containment of the vapor. In either case, the exhaust system described by Johnson

et al. is so remote from the location at which the vapor is generated that the exhaust system could not be considered a means for collecting the vapor *at or adjacent the means for heating*, as recited in Claim 31. The blowing of air to cool the photosensitive element that is described by Johnson et al. is not a means for collecting the vapor, nor a means for directing the vapor. In effect, the blowing of air in Johnson et al. disperses the vapor throughout the environment of the apparatus and encourages cooling and condensation of components in the vapor.

Johnson et al. do not teach or suggest a thermal development apparatus that includes a means for collecting the vapor located at or adjacent the heating means. Johnson et al. do not teach or suggest a means for collecting the vapor located at the heating station 50 that includes an embodiment in which at least one collection member 55 is placed at or adjacent to the nip 60 where the photosensitive element 16 contacts the absorbent web 35. In the embodiment shown in Figure 1, there are three collection members 55 at the heating station 50 that are spaced about a hot roller 38 with at least one collection member 55 on each side of the nip 60. The at least one collection member 55 may also comprise a manifold (as recited in Claim 57). Also, Johnson et al. do not teach or suggest a shroud 56 to isolate the vapor at the heating station 50 from the remainder of the environment of the apparatus and to contain the vapor generated for collection by the at least one collection member 55. The shroud 56 is an optional addition to the means for collecting the vapor at or adjacent the heating means (as recited in Claim 59). Further, Johnson et al. do not teach or suggest a means for collecting the vapor at or adjacent the heating means that can include a supply of air 57 (which may be called an air knife or an air curtain) that serves to contain and direct the vapor toward the at least one collection member located at or adjacent the means for heating.

The Examiner has stated that collecting vapor at the heating station merely requires creating airflow to direct the vapor to a collecting means. However, creating airflow to direct the vapor to an exhaust misses the point that any part of the apparatus between the location of vapor generation (at the heating station) and the collecting means is at risk of becoming an accumulation point for condensate. In effect, the airflow created to direct the vapor to the exhaust is just dispersing the vapor created at the heating station throughout the environment of the apparatus. Thus, the presence of condensable vapor and/or condensed droplets in the exhaust requires an approach different than that described by Johnson et al. To avoid the accumulation of condensed material on surfaces between the point of generation (heating station) and the collection means, the vapor condensed droplets have to be collected before they can condense or deposit on surfaces in the apparatus or the photosensitive element. Positioning the collecting means remote from the heating

station, with various machine parts in between the heating station and collection means as described by Johnson et al., prohibits achieving this goal.

Furthermore, the features for the apparatus recited in Claims 37 through 51 which depend from Claim 31, are not taught or suggested by Johnson et al. Claim 37 includes a means for confining the vapor collected at the heating station. The means for confining the vapor can be a series of interconnected conduits 66 that direct the vapor from the collection members 55 to a means for managing the removal of the vapor. The means for confining the vapor thus may also confine the condensate as it is generated. Claim 38 includes a means for managing removal of the vapor from the apparatus. An embodiment of a means for managing removal of the vapor is shown in Figure 2 that includes a separation unit 70 suitable to manage the removal of vapor, vapor and condensate, or condensate from the air. The separation unit 70 includes a coalescing unit 74, an impingement surface 76, and a separation chamber 78. Even though another embodiment of the means for managing the vapor is a means for exhausting the vapor, Claim 39 is still distinctive over Johnson et al., since the vapor is collected at or adjacent the heating means. Claim 41 recites that the means for managing the vapor also includes means for maintaining a non-recirculating flow of the vapor. The means for maintaining a non-recirculating flow of the vapor create no or minimal areas of air flow at low velocity, which can cause entrained droplets to come out of suspension and collect in the exhaust piping and lead to a build up of liquid condensate in undesirable locations. In Claim 42 the means for managing the removal of the vapor comprises means for maintaining the vapor at a temperature sufficient to keep the vapor in its vaporized state. In Claim 43 the means for managing the removal of the vapor comprises means for cooling the vapor to a temperature sufficient to condense one or more of the components in the vapor. Johnson et al. do not teach or suggest a means for confining the vapor, a means for managing removal of the vapor, nor any of the dependent features associated with the means for confining and the means for managing the removal.

Additionally, Johnson et al. do not acknowledge problems with the vapor forming condensate throughout the apparatus, and thus do not teach or suggest solutions to condensate formation. Claim 44, which depends from Claim 31, recites that all or a portion of the vapor cools or is cooled to form condensate. Claims 45 through 51, which depend from Claim 44, specifically recite means for managing the vapor *and the condensate*, means for separating the vapor *from the condensate*, and means for *collecting the condensate*.

Patentability relies upon the distinctive limitations recited in present Claim 31. Claims 32 through 63, which directly depend or ultimately depend from Claim 31, incorporate the patentable novelty of Claim 31. Therefore, the allowance of Claims

31 through 63 appears to be in order for at least the reasons given above with respect to Claim 31.

Reconsideration and allowance of this application are respectfully requested.

Respectfully submitted,

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